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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/614,890	07/12/2000	Darko Kirovski	MSI-587US	2503

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EXAMINER

COLIN, CARL G

ART UNIT	PAPER NUMBER
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2136

DATE MAILED: 09/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/614,890	Applicant(s) KIROVSKI ET AL.	
	Examiner Carl Colin	Art Unit 2136	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 May 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-9 and 11-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-9 and 11-41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on 24 May 2004 is: a) ☒ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>7/15/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. In response to communications filed on 5/24/2004, applicant amends claims 1, 5, 6, 8, 9, 11-14, 16-24, 28, and 34, cancels claims 2, 10, and adds claims 35-41. The following claims 1, 3-9, and 11-41 are presented for examination.

2. The amendments to the specification, pages 2-5, filed on 5/24/2004 have been considered.

2.1 Applicant's remarks, filed on 5/24/2004, with respect to the objection to the drawings and the claims have been fully considered and have been withdrawn with respect to the amended specifications and the amended claims..

2.2 Applicant's arguments, pages 19-6-39, filed on 5/24/2004, with respect to the rejection of claims 1-34 have been fully considered but they are not persuasive. Claim 1 has been amended to include the limitations of cancelled claim 2. Applicant states that Shur does not disclose the features of claim 1. Examiner respectfully asserts that Shur discloses all the claimed features of claim 1 (see figures 1a, 1b). Shur discloses a first pattern and second data pattern and imposing a discrete value of the second data pattern (key K) over a first data pattern (watermarking parameters) and encoding the result into the digital signal, for example (see column 10 and figures 1a and 1b). Regarding claims 11 and 24, Shur also discloses contrarily as argued by

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Applicant multiple states to encode the binary watermarked signal that indicates a discrete value of the covert message, for example (see column 7, lines 1-30; see also column 7, line 55 to end of column 8). Regarding claim 9, Shur discloses watermark being an encoded data pattern representing multiple data patterns comprising an original watermark data pattern and a covert data pattern, for example (see column 9, lines 64 et seq. and column 10). Therefore, claims 1-15, 18-29, are still rejected on the same ground of rejection. Upon further consideration in view of the amended claim 16 a new ground of rejection is made in view of new references. Other claims not challenged by Applicant still apply in this Office Action.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 16 and the intervening claims are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The step of “assigning each of the multiple watermarks to each of the possible discrete values for at least a portion of the covert message and selecting a watermark that corresponds to an actual discrete value of a specific portion of a covert message” is not supported in the Applicant’s disclosure on page 27, line 18 through page 29, line 7. out and distinctly claim the subject matter which applicant regards as the invention.

Claim Objections

4. Claim 9 is objected to because of the following informalities: on line 9, the word “an” watermark should be -- a--. Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

- 5.1 **Claims 1-15 and 18-29** are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent 6,330,672 to **Shur**.

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5.2 **As per claim 1, Shur** discloses a method for concealing data within a digital signal, the method comprising: receiving a first data pattern of discrete values and a second data pattern of discrete values (see column 2, and column 3, lines 40-67; column 10 and figures 1a and 1b); imposing a discrete value of the second data pattern over one or more values of the first data pattern (see column 2, and column 3, lines 40-67; column 10 and figures 1a and 1b); encoding a third data pattern into the digital signal, wherein such third data pattern is the result of the imposing, for example (see column 10 and figures 1a and 1b). Shur discloses all the claimed features of claim 1 (see figures 1a, 1b). Shur discloses a first pattern and second data pattern and imposing a discrete value of the second data pattern (key K) over a first data pattern (watermarking parameters) and encoding the result into the digital signal, for example (see column 10 and figures 1a and 1b).

Claims 8, 20, 22, 23, and 18 recite the same limitation as the rejected **claim 1**.

Therefore, **claims 8, 20, 22, and 18** are rejected on the same rationale as the rejection of **claim 1**.

As per claims 9, 13, 19, and 21, Shur discloses a method and apparatus for revealing a covert data pattern of discrete values from an encoded data pattern of discrete values in a digital signal, the method comprising: receiving a digital signal the digital signal having a watermark encoded therein the watermark being an encoded data pattern representing multiple data patterns comprising an original watermark data pattern and a covert data pattern, for example (see column 9, lines 64 et seq. and column 10); extracting a discrete value of the covert data pattern

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from one or more values of the encoded data pattern (see column 11, and column 9, lines 64 et seq. and column 10).

As per claim 24, claim 24 recites same inventive concept as claims 1 and 9 except for replacing the second pattern by a covert channel and the first pattern by the watermarked signal. **Shur** also discloses receiving an original watermark data pattern of discrete values and a covert data pattern of discrete values, for example (see column 9, lines 64 et seq. and column 10; column 11); applying imposing a discrete value of the covert data pattern over one or more values of the original data pattern (see column 9, lines 64 et seq. and column 10 and figures 1a, 1b see also column 8, lines 50 et seq.); encoding results of the imposing within an unmarked signal to produce the marked signal (see column 4, lines 45 et seq. and column 10 and figures 1a, 1b). Claim 24 is rejected also on the same rationale as the rejection of claims 1 and 9.

As per claims 3 and 25, **Shur** discloses the limitation of wherein the imposing comprises performing a Boolean operation with a discrete value of the second data pattern and one or more values of the first data pattern, for example (see column 9, lines 10-50 and column 10, lines 27-52).

As per claims 4 and 26, **Shur** discloses the limitation of wherein the imposing comprises XORing a discrete value of the second data pattern with one or more values of the first data pattern (see column 9, lines 10-50 and column 10, lines 27-52).

As per claims 5 and 27, Shur discloses the limitation of wherein a pattern of discrete values may be encoded into the signal in one of multiple discrete states (see column 11, lines 3-6 and column 10 and figures 1a and 1b); the imposing comprises encoding one or more values of the first data pattern into the digital signal into a state that indicates a discrete value of the second data pattern (see column 10 and figures 1a and 1b).

As per claims 6, 12, and 28, Shur discloses the limitation of wherein the digital signal is an audio signal (see column 3, lines 34-38).

As per claims 7 and 29, Shur discloses the limitation of wherein the first data pattern is a watermark (see column 3, lines 40-45 and column 10 and figures 1a and 1b).

As per claim 10, Shur discloses the limitation of detecting an original data pattern within the encoded data pattern of the digital signal (see column 12, lines 4-6).

As per claim 11, Shur discloses the limitation of wherein a pattern of discrete values may be encoded into the signal in one of multiple discrete states (see column 11 and column 10 and figures 1a and 1b see also column 7, lines 1-22); the extracting comprises decoding a discrete value of the covert data pattern from the digital signal based upon a state of a one or more discrete values of the encoded data pattern (see column 3, lines 40-65 and column 4; column 11, and column 9, lines 64 et seq. and column 10).

As per claim 14, Shur discloses a method for encoding a watermark with a covert message into a digital audio signal, wherein binary bits of the watermark may be encoded into the signal in multiple states (see column 3, lines 40-65 and column 11; see also column 6); the method comprising encoding one or more bits of the watermark into the digital signal into a state that indicates a discrete value of the covert message (see columns 3-4; and column 11; see also column 6). (See also column 7, lines 1-30; see also column 7, line 55 to end of column 8 and column 9, lines 64 et seq. and column 10)

As per claim 15, Shur discloses the limitation of wherein the multiple states are positive or negative modifications to magnitudes of one or more subbands in the frequency spectrum of a sample of the signal (column 7, lines 1-30; see also column 7, line 55 to end of column 8 and column 9, lines 64 et seq. and column 10).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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6.1 **Claims 16 and 17** are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6,633,652 to **Shur** in view of US Patent 5,809,139 to **Girod et al.** (*Applicant's IDS*) and in view of US Patent 6,259,801 to **Wakasu**.

6.2 **As per claim 16, Shur** substantially teaches a method for imposing a covert message into a watermark, the method comprising: **Shur** discloses imposing a covert message to a watermark and discloses the encoding of watermark into signal as discussed above. **Wakasu** in an analogous art teaches generating multiple watermarks, for example (see drawings). **Wakasu** further discloses selection of watermark data corresponding to an actual discrete value of at least a specific portion of digital data, for example (see column 2, lines 35-67; see column 5, line 30 through column 6, line 27; column 7, line 15 through column 8, line 53). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of **Shur** to include the inventive concept of the selection process of **Wakasu** to generate multiple watermarks and selecting a watermark corresponding to a an actual discrete value of a specific portion of a covert message. This modification would have been obvious because one skilled in the art would have been motivated by the suggestions provided by **Wakasu** so as plural watermark can be inserted without negation to each other and at the time of detection the electronic watermark data can be detected properly, for example (see column lines 50 et seq. as per **Wakasu**).

Girod et al. discloses generating multiple watermarks and further discloses assigning each of the multiple watermarks to each of the possible discrete values for at least a portion of the covert message, for example (see abstract and column 5, line 23 through column 4).

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Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of **Shur** to assign each of the multiple watermarks to each of the possible discrete values for at least a portion of the covert message as taught by **Zhao et al.**

This modification would have been obvious because one skilled in the art would have been motivated by the suggestions provided by **Girod et al.** so as to add watermark signals without increasing the bit rate as per **Girod et al.** (column 6, lines 23-53).

7. **Claims 16 and 17** are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6,633,652 to **Shur** in view of US Patent 5,809,139 to **Girod et al.** and in view of US Patent 6,259,801 to **Wakasu** as applied to claim 16 and further in view of **Zhao et al.**, "A generic Digital Watermarking Model", Comput. & Graphics, Vol. 22, No. 4, pp.397-403, 1998 (*Applicant's IDS*).

7.1 **As per claim 17, Zhao et al.** in an analogous art teaches generating multiple watermarks generate multiple watermarks wherein the size of covert message with N bits long resulting into 2^N multiple watermarks, for example (see page 399 and page 401). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method as combined above to generate multiple watermarks wherein the size of covert message with N bits long resulting into 2^N multiple watermarks as taught by **Zhao et al.** This modification would have been obvious because one skilled in the art would have been motivated

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by the suggestions provided by **Zhao et al.** so as to overwrite noise added by previous watermarks as per **Zhao et al.** (page 401).

8. **Claims 30-41** are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6,633,652 to **Shur** in view of US Patent 5,809,139 to **Girod et al.**

As per **claims 30-34** these claims recite the same inventive concept as claim 1 except for changing the imposing step into a permutation step. **Wakasu** discloses the permutation step including a table, for example (see column 7, line 20 through column 8). Therefore these claims are rejected on the same rationale as the rejection of claim 1.

Claims 35-41 recite the same inventive concept as claims 1, 3-7, 16. Therefore these claims are rejected on the same rationale as the rejection of claims 1 and 16.

Conclusion

9. Applicant's submission of an information disclosure statement under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p) on 7/15/2004 prompted the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 609(B)(2)(i). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO**

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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9.1 Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carl Colin whose telephone number is 703-305-0355. The examiner can normally be reached on Monday through Thursday and every other Friday, 8:00-6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on 703-305-9648. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

ce

Carl Colin

Patent Examiner

September 20, 2004



AYAZ SHEIKH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100